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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/646,196	08/22/2003	Yiliang Wu	D/A2543	9008

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XEROX CORPORATION  
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EXAMINER

ZEMEL, IRINA SOPJIA

ART UNIT PAPER NUMBER

1711

DATE MAILED: 06/06/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

10/646,196

Applicant(s)

WU ET AL.

Examiner

Irina S. Zemel

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 11 March 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1,2,4-8 and 10-25 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 25 is/are allowed.
- 6) ☒ Claim(s) 1,2, 4-8 and 10-24 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

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## **DETAILED ACTION**

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 10 rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 10 depends of cancelled claim 9.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 2, 4, 5, 6, 10 -14, and 16-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ong.

The rejection of claims 6, 10, 13, 14 and 16-23 stands as per reasons of record. Insofar as the amended claim 1 now requires the arylene units to be substituted arylene, the reasons for rejection of claims 6, 9, 10, 13, 14 and 16-23 set forth in the previous office action are now applicable to claims 1, 2, 4, 5, 11, and 12 previously rejected under 35 USC 102.

Claims 1, 2, 4-8, 10-15 and 24 are rejected under 35 U.S.C. 103(a) as being obvious over US Patent 6,445,126 to Arai et al., (hereinafter "Arai").

The rejection of claims 1-15 and 24 stands as per reasons of record.

### ***Response to Arguments***

Applicant's arguments filed 3-11-2005 have been fully considered but they are not persuasive.

Regarding the rejections over Ong, the applicants argue that "[I]n Ong, a 3,4-disubstituted thiophene is required in the repeating segment. In the instant claims, no 3,4-disubstituted thiophene is required or present in the repeating segment." While this is so, the open language of the base claim 1 (and consequently claims 2, 4-15 and does not preclude presence of ANY additional co-monomers in the claimed polymers, and only requires the presence of certain claimed monomers. Thus, even though the polymers disclosed by Ongi include additional co-monomers or units, the claimed polymers clearly read on the disclosed polymers since the disclosed polymers do contain required units (I) or (II) and required units (IIIa-c).

In addition, the applicants argue that "claim 1 has been amended to recite that a and b must be one or two; they cannot equal zero. Therefore, the divalent linkage A of Ong does not read on the three arylene units (IIIa), (IIIb), or (IIIc) of the instant claims." In this regard, claims are no longer are rejected as being anticipated by the Ong reference, rather as being obvious over the Ong reference, for the same reasons as stated in the previous office action with regard of claims 3,4, etc., claiming substituted

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arylene units, i.e., that the claimed alkyl substituted arylene units are homologues of the unsubstituted units, and would have been obvious as such with expectation similarities/differences of homologues. Similarly, 3,4-disubstituted thiophenes when the second substituent can be a CH<sub>3</sub> group would have been obvious from monosubstituted thiophenes as their homologues.

Regarding rejections of claims over Arai reference, the applicants argue that the formulas disclosed in Arai all require vinylene (CH<sub>2</sub>=CH<sub>2</sub>) groups between the various arylene groups. However, no vinylene groups are present in the instant claims. While this is so, the open language of the base claim 1 does not preclude presence of a ANY additional co-monomers in the claimed polymers, and only requires the presence of certain claimed monomers. Thus, even though the polymers disclosed by Arai include additional co-monomers or units, the claimed polymers clearly read on the disclosed polymers since the disclosed polymers do contain required units (I) or (II) and required units (IIIa-c).

Therefore, the rejections of all claims with the exception of newly added claim 25 stands as per reasons of record.

***Allowable Subject Matter***

Claim 25 is allowed. None of the prior art references of record disclose a thionylene-arylene polymers presented by the claimed formula (20) and containing a repeat unit consisting of one dialkoxysubstituted arylene unit and two unsubstituted 2,5-thienylene units.

Applicants should note that while claim 25 is not per se indefinite, the recited limitation of "is optionally a number of from about 5 to about 200" renders the allowed claim 25 confusing insofar as the intended meaning of the term "optionally".

### ***Conclusion***

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Irina S. Zemel whose telephone number is (571)272-0577. The examiner can normally be reached on Monday-Friday 9-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, James Seidleck can be reached on (571)272-1078. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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**James J. Seidleck**  
**Supervisory Patent Examiner**  
**Technology Center 1700**